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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,178	07/31/2003	Elazer Sonnenschein	0-03-153	1437
7590 Kevin D. McCarthy Roach Brown McCarthy & Gruber, P.C. 1620 Liberty Building 420 Main Street Buffalo, NY 14202			EXAMINER HENN, TIMOTHY J	
			ART UNIT 2622	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	DELIVERY MODE
3 MONTHS			04/19/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/631,178	SONNENSCHN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Timothy J. Henn	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-28, 30 and 31 is/are pending in the application.
- 4a) Of the above claim(s) 25-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 1, 16-24 and 30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of claims 1-24, 30 and 31 in the reply filed on 26 February 2007 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-10, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 6,142,930).

#### **[claim 1]**

Regarding claim 1, Ito discloses an imager assembly for a miniature camera head comprising: an image sensor having conductive leads emanating from two opposite sides of the sensor, for outputting or inputting electric signals (Figure 16, Items 110 and 123); an objective lens system placed on top of the sensor (Figure 16, Item 146); circuit mounted beneath the image sensor wherein the components of the circuitry are electrically linked, according to circuit requirements to each other and the sensor leads by conductive wires (Figure 16, Items 161 and 162; c. 8, l. 1-5); conductive wires

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electrically linked to the circuitry and to the leads of the image sensor for conducting electrical signals between the electrical circuitry and a remote location (Figure 16, Item 163); and conductive wires electrically linked to the circuitry and to the leads of the image sensor to provide them with electrical power from an external power supply (i.e. input signals; c. 8, ll. 1-6) wherein the conductive leads are bent and the circuit and the conductive wires are arranged and mounted such that the dimensions in a plane parallel to the sensor plane of the camera head are approximately equal to or less than the dimensions in the plane of the sensor (Figure 16); the circuit is capable of delivering signals produced by the image sensor for further processing (c. 8, ll. 1-6) and the components of the imager, except for the imaging surface of the sensor and the object lens system are encapsulated by an isolating material (Figure 16, Items 155, 164 and 165; c. 8, ll. 1-11). While Ito discloses circuitry which processes signals input to and output from the imager (c. 8, ll. 1-5), Ito does not explicitly disclose driving the sensor and amplifying the electrical signals output from the sensor as claimed. Official Notice is taken that it is notoriously well known in the art to use processing circuitry to drive an image sensor (i.e. to control readout of the pixels) and to amplify the resulting output signals (i.e. to provide automatic gain control or to increase dynamic range). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to drive the sensor and amplify the electrical signals as claimed to control readout and provide automatic gain control or to increase dynamic range of the signal.

**[claim 2]**

Regarding claim 2, Ito discloses an imager wherein the electrical components of the circuitry are lined-up behind the image sensor (Figure 16).

**[claim 3]**

Regarding claim 3, Ito discloses an image sensor which is a CCD image sensor (c. 7, ll. 55-60).

**[claim 4]**

Regarding claim 4, Ito discloses a CCD sensor which is part of a TAB imager package (c. 8, ll. 12-24).

**[claim 5]**

Regarding claim 5, Ito does not disclose an image sensor which is a CMOS image sensor. Official Notice is taken that it is notoriously well known in the art to use CMOS image sensors in place of CCD image sensors since CMOS image sensors are capable of faster frame rates and allow for individual pixel addressing. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use an CMOS image sensor in the system of Ito instead of the CCD image sensor to be able to drive the system at higher frame rates.

**[claim 6]**

Regarding claim 6, Ito discloses circuitry (c. 8, ll. 1-6) but does not explicitly disclose circuitry including amplification, resistive, capacitive and conductive components as claimed. Official Notice is taken that amplification, resistive, capacitive and conductive components are the building blocks of all electrical circuits. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was

made to use amplification, resistive, capacitive and conductive components to build the circuitry of Ito since amplification, resistive, capacitive and conductive elements are well understood components of electrical circuits.

**[claim 7]**

Regarding claim 7, the examiner notes that an amplification component is by definition an “amplifier” (see claims 1 and 6 for further details).

**[claim 8]**

Regarding claim 8, Ito discloses conducting wires used for linking the circuitry components (Figure 16), the examiner notes that conducting wires inherently include some resistance (i.e. a resistive component) as claimed.

**[claim 9]**

Regarding claim 9, Ito discloses conducting wires for linking the circuitry components but does not disclose “burn resistors” as claimed. Official Notice is taken that the use of resistive components which “burn” at set voltage/current levels can be used to protect the circuitry from voltage/current spikes thereby preventing further damage to the system. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include burn resistors as claimed to protect the system of Ito from voltage/current spikes which would otherwise damage the circuitry.

**[claim 10]**

Regarding claim 10, Ito discloses conducting wires used for linking the circuitry components (Figure 16), the examiner notes that conducting wires inherently include

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some capacitance (i.e. a capacitance component) as claimed.

**[claim 14]**

Regarding claim 14, Ito discloses circuitry for processing signals input to and output from the image sensor (c. 8, ll. 1-6) but does not explicitly disclose that the circuitry is an ASIC circuit. Official Notice is taken that ASIC circuits are notoriously well known in the art to build circuits as ASIC circuits to reduce the total cost compared to relying on more expensive over-the-counter generic microprocessor elements.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to build the processing circuitry of Ito as ASIC circuits to reduce the total cost of the system.

**[claim 15]**

Regarding claim 15, Ito discloses circuit and an image sensor which is a single unit (Figure 16), but does not explicitly disclose circuit which is an ASIC circuit. Official Notice is taken that ASIC circuits are notoriously well known in the art to build circuits as ASIC circuits to reduce the total cost compared to relying on more expensive over-the-counter generic microprocessor elements. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to build the processing circuitry of Ito as ASIC circuits to reduce the total cost of the system.

4. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (US 6,142,930) in view of Upton et al. (US 6,141,037).

**[claim 11]**

Regarding claim 11, Ito lacks a power source and a transmitter capable of wireless delivering the electrical signals produced by the circuitry and the image sensor to a remote location for processing as claimed.

Upton discloses a imager assembly including a power source (Figure 2, Item 202) and a transmitter (Figure 2, Item 201) which allows the imager assembly to be self contained and increases the sterilizability of the system (p. 11, ll. 56-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a local power source and transmitter as taught by Upton in the system of Ito to obtain a self-contained imager assembly with increased sterilizability.

**[claim 12]**

Regarding claim 12, see claim 11 and note that Upton teaches an imager assembly which is not linked to an external power supply by power supply wires (Figure 2).

**[claim 13]**

Regarding claim 13, Ito does not disclose using imager components, encapsulating material and conducting wires which have heat resistant characteristics as claimed.

Upton discloses that it is desirable to create imager assembly which is heat resistant and can be sterilized through steam autoclave methods (c. 3, ll. 32-63). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use heat resistant materials to construct the imager of Ito so that

the imager is capable of withstanding high heat associated with steam autoclave sterilization as taught by Upton.

***Allowable Subject Matter***

5. Claims 16-24, 30 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**[claims 16-24, 30 and 31]**

Regarding claims 16-24, 30 and 31 the prior art does not teach or fairly suggest an image assembly as claimed further comprising a plate having dimensions in the plane parallel to the sensor plane that are equivalent to or small than the dimensions of the sensor and located beneath the sensor in an overlapping manner wherein the plate includes grooves located at opposite edge locations corresponding to the conductive leads, the circuitry is mounted on the bottom side of the plane, the circuit includes electrical connection points and the leads are connected to the connection points via the grooves such that the dimensions of the camera head in the plane parallel to the sensor plane are approximately equal to or less than the corresponding dimensions of the sensor. While it is known in the prior art to provide a plate including circuit components below an image sensor and to connect the circuit components to the image sensor via conductive wires (e.g. Ito), the prior art does not teach the exact combination as claimed.

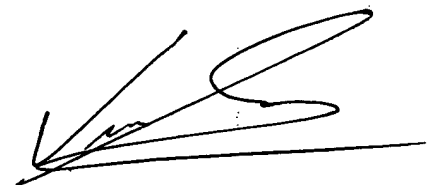
**Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Henn whose telephone number is (571) 272-7310. The examiner can normally be reached on M-F 11-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TJH  
4/10/2007



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